on to add to his numerous onerous duties by himself serving on the Council; but he would probably consent to act as chairman of the electoral committee.

It is earnestly to be hoped that members of the Government will agree to adopt some such scheme. To embark without expert—real expert—advice on nominating the members of such a Council would be to expose it to risks equal to that attending the dye scheme, and would make it impossible to achieve the objects which they appear to have at heart. Let us hope that they will, in this case at least, trust the expert.

Lastly, it is earnestly to be hoped that Mr. Pease's good intentions will not take the form of the institution of a number of Government scholarships. It is grossly unfair to induce young men by scholarships to embark on a career which has little if no outlook; and that has hitherto largely been the case. The status of chemists in Government employment, for example, is not such as to induce any young man who can choose any other profession to devote himself to the career of an official chemist. Compared with other civil servants, he is underpaid and overworked. And although certain manufacturers, to their credit, maintain excellent laboratories, in which a young man has scope to show his ability and may meet with a suitable reward, yet these are the exception. It is to increasing their number and organising their resources that the efforts of the Chemical Council should be devoted.

The suggestion of the foundation of chemical institutes will not meet the case. Those at Dahlem, near Berlin, I am informed at first hand, are not appreciated by the young chemists who work in them; they do not lead to permanent positions. The same cause has resulted in the comparative failure of our Davy-Faraday Institution; and it would be futile to embark on an ambitious scheme for training research chemists without first making sure of their having a reasonable chance of earning a living when they leave.

WILLIAM RAMSAY.

A GREAT PLANT COLLECTOR.

Journal kept by David Douglas during his Travels in North America, 1823–1827. Pp. 364. (London: W. Wesley and Son, 1914.) Price 21*s.* net.

DAVID DOUGLAS, whose journals after lying neglected for nearly ninety years have recently been printed and published by the Royal Horticultural Society, was born near Scone, in Perthshire, in the year 1798. He was apprenticed as a gardener in the Earl of Mansfield's gardens at Scone. When he was about twenty years of age he went to the botanic garden at Glasgow, where at that time the elder Hooker held the position of professor of botany. He became Hooker's assistant and companion during his famous botanical tours in the western Highlands, and showed such a love and enthusiasm for plants that when the Royal Horticultural Society, in quest of a suitable man for a botanical expedition to North America, applied to Hooker, the latter at once recommended Douglas. Douglas accordingly visited the eastern United States and Canada in 1823. His journal describing this trip has but a mild interest, much of the ground he traversed having been already well trodden. He fulfilled his task, however, so much to the satisfaction of the Royal Horticultural Society that, in 1824, he was again dispatched to North America, this time to the western side. By reason of the number of plants he discovered and introduced this journey proved an epoch-making one, both in botany and horticulture. Douglas left Gravesend in July, 1824, and, going by way of the Straits of Magellan, reached the mouth of the Columbia River the following April. After two years' work in Oregon and California he returned by the overland route to York Factory, south of Hudson's Bay, and reached England in October, 1827. He made a second journey to the same regions in 1829, but of this the present volume gives no account.

Douglas stands undoubtedly in the very first rank of plant collectors, having as his compeers such men only as Masson, Allan Cunningham, William Lobb, Robert Fortune, and Wilson. The journals show that he possessed to a high degree those peculiar and diverse qualities that go to make a first-class plant collector—physical courage and endurance, contempt of hardships, a love and knowledge of botany, together with a certain business aptitude and adaptability to new surroundings. He enjoyed the advantage of a practically virgin field for his labours, for scarcely any botanical exploration had been done in this region since Vancouver's voyage of survey some thirty years before, when Archibald Menzies—Vancouver's surgeon and botanist—had made a few excursions near the coast. And not only was his field a virgin one; it comprised the finest sylva of temperate regions, one might even say, of the entire world.

These journals were written in simple style, often apparently after the day's journey was done, with no attempt at literary embellishment and agreeably free from any bombast or undue self-

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consciousness, such as has been too often characteristic of self-educated men of Douglas's class. It is not often even that Douglas indulges in a reflection on the marvels of nature, new and wonderful as they must have appeared to him. Much of what he records is little more than what has happened on previous days, and is going to happen on succeeding ones. Yet in spite of a certain monotony, the narrative possesses that charm and interest which mark even the plainest story of the pioneer. Douglas was apparently but seldom in danger from Indians or animals, although, with regard to the former, the situation became strained on more than one occasion. Grizzly bears, too, provide an occasional excitement, and we have a glimpse (p. 217) of one of Douglas's companions hurriedly climbing an oak, with the claws of an angry grizzly so close behind that his coat and trousers were torn to tatters. But, on the whole, it was storm and rain, cold, swollen rivers, excessive fatigue, and an insecure food supply that made up the chief hardships of his wanderings. The botanical interest of his writings is not so great as it would have been had the plants he met with and enumerates been identified. There is not so much to interest one in a paragraph like "(467) *Poa* sp.; annual; small, creeping; on the sandy banks of rivers, plentiful," as there would be if we knew the particular grass to which he was referring.

One of the most interesting items in the narrative is the collector's quest for a pine of extraordinary dimensions of which from time to time he heard accounts. His final success in exciting circumstances is recorded on page 230:—

"About an hour's walk from my camp I was met by an Indian, who on discovering me strung his bow . . . and stood ready on the defence. As I was convinced this was prompted by fear, I laid my gun at my feet and waved my hand for him to come to me, which he did with great caution. With my pencil I made a rough sketch of the cone and pine I wanted and showed him it, when he instantly pointed to the hills about fifteen or twenty miles to the south. As I wanted to go in that direction he, seemingly with much good will, went with me. At midday I reached my long-wished pine, and lost no time in examining and endeavouring to collect specimens and seeds. Lest I should never see my friends to tell them verbally of this most beautiful and immense tree, I now state the dimensions of the largest one I could find blown down by the wind: Three feet from the ground, 57 feet 9 inches in circumference; 134 feet from the ground, 17 feet 5 inches; length, 215 feet."

The editor gives no indication of what this tree proved to be, but from the description we have no doubt that Douglas here describes the first discovery of that most wonderful of pines, *Pinus Lambertiana*. He was not permitted to get away from the spot unmolested, for in bringing down the cones with shots from his gun the reports brought some armed and painted Indians on the scene, and it was only after some hazardous moments and a combination of palaver and display of pugnacity that Douglas escaped with but three cones and a few twigs.

Where a plant is mentioned by Douglas under a name which is not now accepted, the editor has given its modern equivalent in a footnote. This, of course, is helpful in many instances, but where the collector was palpably in error the fact might have been pointed out. Douglas was in a new country, but he often erroneously assumed that a plant he found on the western side of America was identical with one he already knew on the eastern. A novice is thereby led to believe that *Abies balsamea, Pinus Strobus, Tsuga canadensis, Amelanchier canadensis, Picea rubra,* and several more eastern trees are to be found in Oregon or California.

We are given a portrait of Douglas (showing a mild but Napoleonic cast of countenance), but in reading the book one feels very much the need of a chart giving an indication of his itinerary. Some of his place names are not discoverable in the atlas. Considering the book is published at the not ungenerous price of one guinea net, we think this addition might reasonably have been made. In a series of appendices are given a brief memoir of Douglas, an account of some ascents of the mountains in the Sandwich Islands, a list of the plants he introduced, and an account of his early and tragic death at the age of thirty-six in the Sandwich Islands, where he fell into one of the pit-traps made to catch wild cattle, in which an infuriated animal was already entrapped.

APPLIED CATALYSIS.

The Hydrogenation of Oils, Catalyzers, and Catalysis, and the Generation of Hydrogen. By C. Ellis. Pp. x+340. (London: Constable and Co., Ltd., 1914.) Price 16*s*. net.

THE catalytic reduction of unsaturated carbon compounds by the direct action of hydrogen in the presence of a finely divided metal may be said to have been discovered by v. Wilde in 1874, when he succeeded in transforming ethylene into ethane by passing the unsaturated hydrocarbon mixed with hydrogen over platinum-black. Although this reaction was found to be of considerable service in synthetic chemistry, it remained without special significance until Sabatier

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